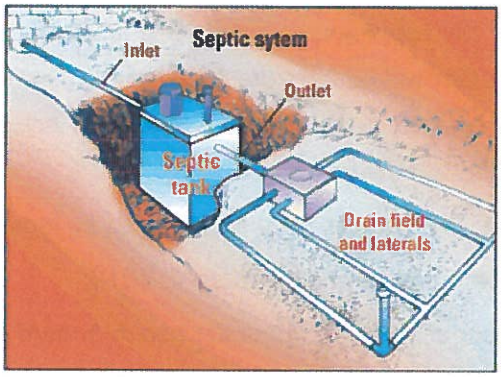
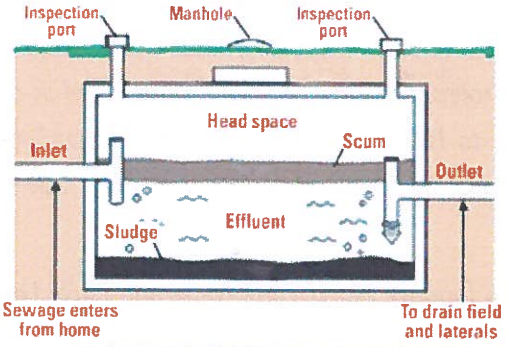
Tiverton, RI

Sewer System Construction Program

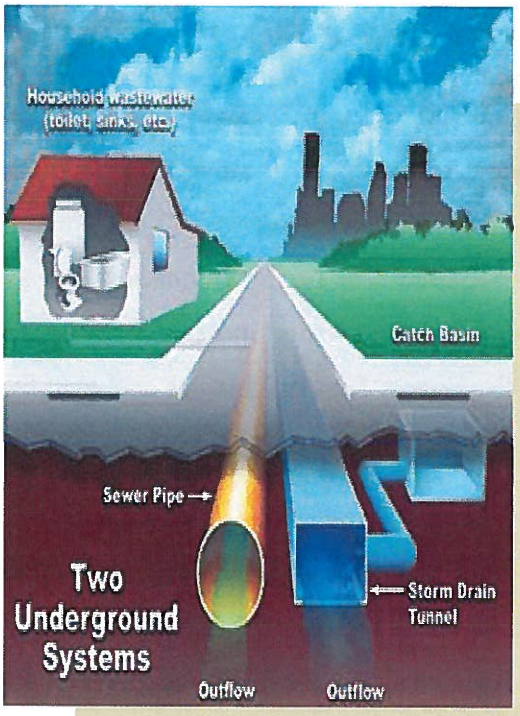
Septic System vs. Town Sewer System

Understanding the Costs Associated with Wastewater Disposal





A Septic System is a system on your property consisting of a septic tank, distribution box, and disposal field. A septic system provides separation of the solids and liquids, but not full treatment of the waste.



A Town Sewer System would consist of an underground sewer pipeline in the street that would transfer household wastewater to a Wastewater Treatment Facility for complete treatment of the waste.

Letter from the Tiverton Wastewater Management Commission

April 2013

Residents of Tiverton,

The Town of Tiverton, Rhode Island and our consultant, AECOM, have completed a review of the Town's Wastewater Facilities Plan in accordance with the requirements of the Rhode Island Department of Environmental Management (RIDEM) Division of Water Resources. The purpose of the review is to assess the current and future wastewater needs of the Town, determine if the recommendations presented in the original Facilities Plan, prepared by Camp, Dresser and McKee (CDM) in 1976 and updated by the Louis Berger Group, Inc. in 2000, were still applicable and recommend changes to the Wastewater Facilities Plan that will address the needs of the Town over the next 20 years. The primary driver for conducting this Facilities Plan Update is the Cesspool Phase-out Act enacted by the State of Rhode Island in 2007. In general, the legislation specifies the following:

- *Cesspools that are within 200 feet of identified critical resources must be replaced by January 1, 2014;*
- *Properties with Cesspools that have sewers available must tie in by January 1, 2014;*
- *If failed, the cesspool must be replaced within 1 year or sooner if imminent health hazard exists;*
- *Exemption: The Act identifies an exemption which applies to cesspools located in areas to be sewered on or before January 1 2020. Properties using cesspools for wastewater disposal within these areas are exempted from the January 1, 2014 phase-out date provided that a project to sewer the area is identified in a Facilities Plan approved by RIDEM and the Municipality states in writing to RIDEM prior to January 1, 2013 that it will carry out the project. Additionally, bonding/financing authority must be obtained by December 31, 2014.*

In additon, other drivers include the following:

- *Pollution in the stormwater outfalls identified in the Janaury 2010 Total Maximun Daily Load (TMDL) Study;*
- *High percentage of properties with failed on-site wastewater disposal systems; and*
- *Properties with contaminated soils.*

This project will amend the currently approved Facilities Plan by reaffirming the need for sewer service in the northern portion of the Town, including all proposed and existing high density residential developments in this area. The project will update the environmental assessment necessary to address providing sewer service to Tiverton. The Facilities Plan, dated 1976, recommended providing a wastewater collection system in four areas of the Town: North Tiverton, Stone Bridge, Bulgarmarsh Road, and Stafford Road. The Facilities Plan concluded that the remainder of the Town would be best served by individual site sewer disposal systems. This decision was based on economics, lot sizes, and soil

conditions. The basic conclusion remains valid and consistent with the Comprehensive Community Plan adopted by the Town in 2009. The planning area of this document was limited to those areas north of Bulgarmarsh Road. Based on the review of the existing documents and updating various technical and financial information, this project recommends:

- *Expand the existing wastewater collection system to service up to 8 new areas of Town as identified as follows: (a) Riverside Area; and (b) Robert Gray Area; (c) Bay Street Area; (d) Church Street Area; (e) Lepes Road Area; (f) Garden Heights Area;(g) Mill Street Area; (h) North Stafford Road Area; These areas are shown on Page 4 & 5. Additionally, the Delano's Island area on Nanaquaket Pond has been identified as requiring further study to develop a suitable alternative to everyone installing advanced treatment systems.*
- *Under the recommended scenario, the number of connections would increase from 550 up to 4,000;*
- *The average daily flow would increase from 90,000 gallons per day to approximately 1,200,000 gallons per day;*
- *The recommendation will be phased over a period of at least 10 years with the first phase being areas with the most critical enviormental concerns, followed by other areas based on economics and need;*
- *Create a Sewer District that encompasses the existing and future sewer collection areas so that* ***only properties located within the Sewer District will be responsible for the costs to design, construct and operate the system;***
- *Develop a Capital Improvement Plan and associated financial plan which results in a financially stable and self-sufficient operation; and*
- *Research and apply for, as applicable, funding sources including grants and low interest loans in order to reduce the burden of costs on the rate payers and users of the system.*

A public information program has been developed in order to bring the proposed sewer program to the public, solicit public input, and answer questions. As part of this program, a project binder has been put in three public locations so that the public can view the document as it evolves. These locations are: (a) Town Hall; (b) Wastewater Management Commission Offices located at The Community Center; and (c) the Essex Library. In addition, public information meetings has have been scheduled which are intended to give you the opportunity to review, and discuss all aspects of the plan. The Wastewater Management Commissioners; The Superintendent; and the Town's Consultant, AECOM, will all be in attendance to address questions you may have.

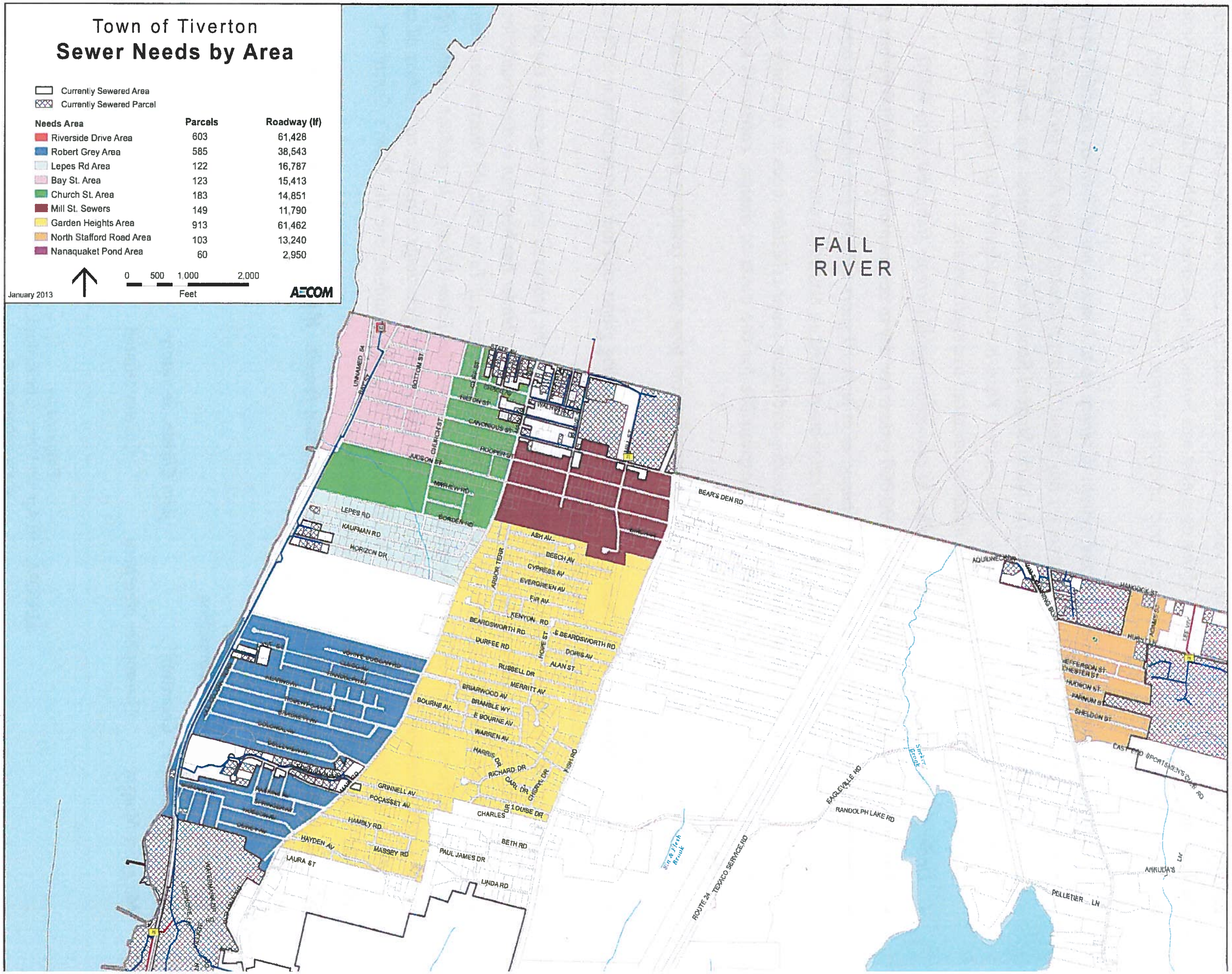
We look forward to your participation in this very important Project. If you have any questions, please contact John Lincourt, Superintendent at 401-625-6701.

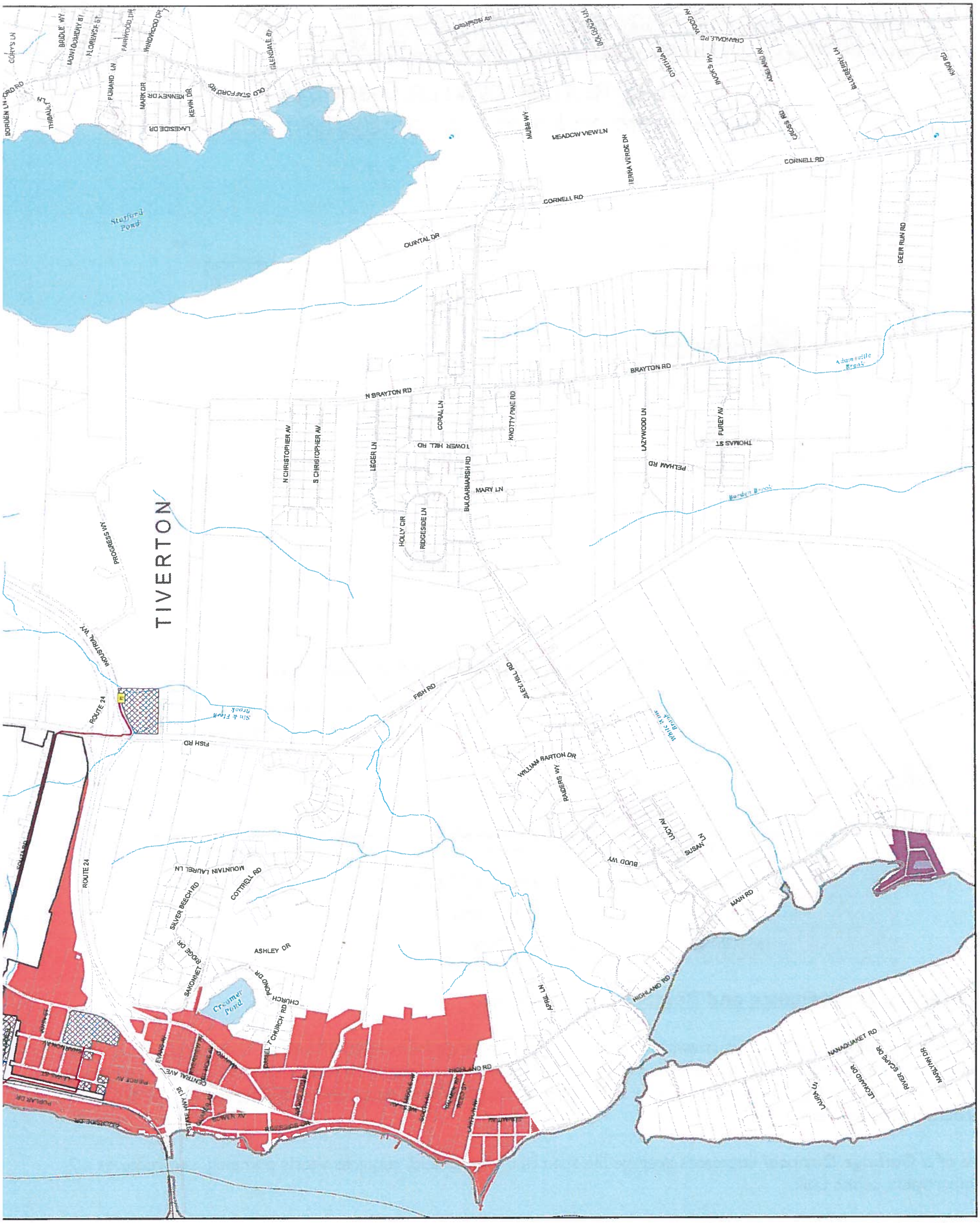
Wastewater Management Commission

Leroy Kendricks, P.E., Chairman *John Christo, Secretary* *Noel Berg*

Margaret Murphy *Christopher Nearpass* *Colleen Stanton* *Jeffery Sterns, P.E.*

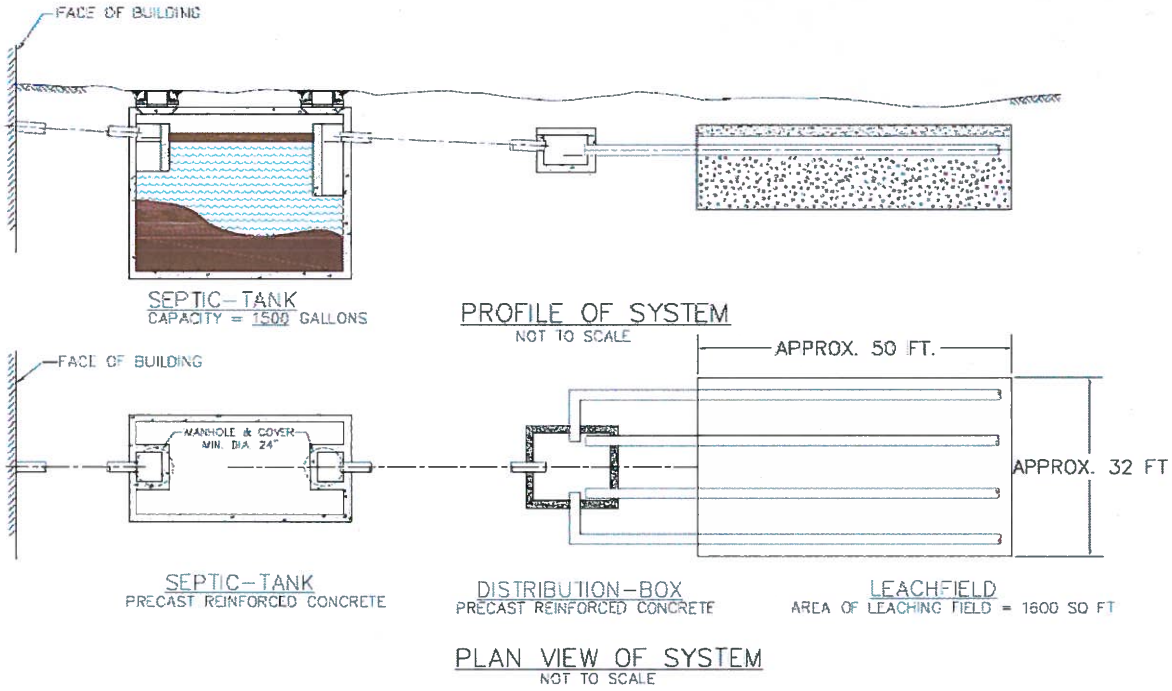
Prepared by:
AECOM, 250 Apollo Drive, Chelmsford, MA 01824
www.aecom.com
April 2013


Town of Tiverton
Sewer Needs by Area
Currently Sewered Area
Currently Sewered Parcel
Needs Area Parcels Roadway (lf)
Riverside Drive Area 603 61,428
Robert Grey Area 585 38,543
Lepes Rd Area 122 16,787
Bay St. Area 123 15,413
Church St. Area 183 14,851
Mill St. Sewers 149 11,790
Garden Heights Area 913 61,462
North Stafford Road Area 103 13,240
Nanaquaket Pond Area 60 2,950
0 500 1,000 2,000
Feet
January 2013
AECOM
FALL RIVER
BEAR'S DEN RD
BOTTOM ST
CHURCH ST
JUDSON ST
HOOPER ST
CANONICUS ST
LEPES RD
KAUFMAN RD
HORIZON DR
ASH AV
BEECH AV
CYPRESS AV
EVERGREEN AV
FIR AV
KENYON RD
BEARDSWORTH RD
E BEARDSWORTH RD
DURFEE RD
DORIS AV
ALAN ST
HOPE ST
RUSSELL DR
MERRITT AV
BRIARWOOD AV
BRAMBLE WY
BOURNE AV
E BOURNE AV
WARREN AV
HARRIS DR
RICHARD DR
CARL DR
LOUISE DR
CHARLES
GRINNELL AV
POCASSET AV
HAMBLY RD
HAYDEN AV
MASSEY RD
LAURA ST
PAUL JAMES DR
BETH RD
LINDA RD
FISH RD
JEFFERSON ST
CHESTER ST
HUDSON ST
FARNUM ST
SHELDON ST
EAGLEVILLE RD
RANDOLPH LAKE RD
ROUTE 24 TEXACO SERVICE RD
PELLETIER LN
ARRUDA'S


TIVERTON
Stafford Pond
LAKESIDE DR
KEVIN DR
KENNEDY DR
MARK DR
OLD STAFFORD RD
GLENDALE ST
CRANDALL RD
CROSS RD
BLUEBERRY LN
MEADOW VIEW LN
TERRA VERDE DR
CORNELL RD
QUINTAL DR
DEER RUN RD
BRAYTON RD
N BRAYTON RD
Adamsville Brook
N CHRISTOPHER AV
S CHRISTOPHER AV
LEGER LN
CORAL LN
TOWER HILL RD
KNOTTY PINE RD
LAZYWOOD LN
FUREY AV
THOMAS ST
PELHAM RD
BULGARMARSH RD
MARY LN
Borden Brook
HOLLY CIR
RIDGESIDE LN
PROGRESS WY
INDUSTRIAL WY
ROUTE 24
FISH RD
WILLIAM BARTON DR
RAIDERS WY
LUCY AV
SUSAN LN
BUDD WY
MAIN RD
MOUNTAIN LAUREL LN
COTTRELL RD
SILVER BEECH RD
ASHLEY DR
Creamer Pond
CHURCH RD
HIGHLAND RD
APRIL LN
CENTRAL AVE
NANAQUAKET RD
RIVER SCAPE DR
LEONARD DR
LAURA LN
MARILYN DR

ON-SITE WASTEWATER DISPOSAL

Understanding What Impacts System Costs



Site Condition No. 1: Typical Septic System Installation

4 Bedroom House
Good Soil Classification
Good Percolation Rate

Low Groundwater Level
Septic Tank = 1,500 gallons

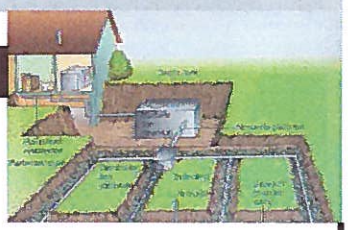
DESCRIPTION	COST
CAPITAL COST - INSTALLATION	$15,000
MONTHLY PAYMENT (2 PERCENT LOAN– 10 YEARS)	$140
MONTHLY OPERATIONS AND MAINTENANCE	$11
ESTIMATED TOTAL MONTHLY COST	**$151**

Operation, Maintenance and Points of Information

Typical Life Span of a on-site wastewater disposal system can range from 10 to 30 years. The average life span is estimated to be 20 years. Poor Operation and Maintenance of your on-site wastewater disposal system can greatly impact the life span of the leachfield. Regular maintenance should include septic tank pumping and overall system inspection at least every 2 years.

Use of a Garbage Disposal decreases average life span of the leachfield, requires yearly pumping, and requires a 2-compartment septic tank.

The Leachfield represents about 75 percent of the overall estimated cost for a typical on-site wastewater disposal system.



ON-SITE WASTEWATER DISPOSAL (CONTINUED)

Understanding What Impacts System Costs

Site Condition No. 2: Poor Soils and Low Groundwater Table

4 Bedroom House
Poor Soil Classification
Poor Percolation Rate

Low Groundwater Level
Septic Tank = 1,500 gallons

Mounded System OR
Larger Leachfield
(Up to 3,000 sq ft)

DESCRIPTION	COST
CAPITAL COST - INSTALLATION	$17,500
MONTHLY PAYMENT (2 PERCENT LOAN– 10 YEARS)	$163
MONTHLY OPERATIONS AND MAINTENANCE	$11
ESTIMATED TOTAL MONTHLY COST	**$174**

Site Condition No. 3: Poor Soils and High Groundwater Levels

4 Bedroom House
Poor Soil Classification
Poor Percolation Rate

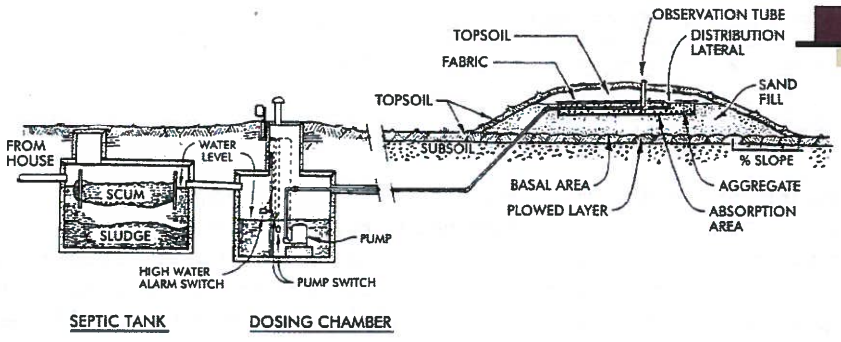
High Groundwater Level
Septic Tank = 1,500 gallons

Mounded System Required
Larger Leachfield Probable

DESCRIPTION	COST
CAPITAL COST - INSTALLATION	$20,000
MONTHLY PAYMENT (2 PERCENT LOAN– 10 YEARS)	$186
MONTHLY OPERATIONS AND MAINTENANCE	$24
ESTIMATED TOTAL MONTHLY COST	**$210**

What is a Mounded System?
Mounded septic systems are designed to address certain site restrictions such as slow/fast permeable soils, shallow soil cover over porous bedrock, and/or high water table.

What are the Disadvantages of a Mounded System?
Higher construction costs, property aesthetics, and pumps or siphons are required.

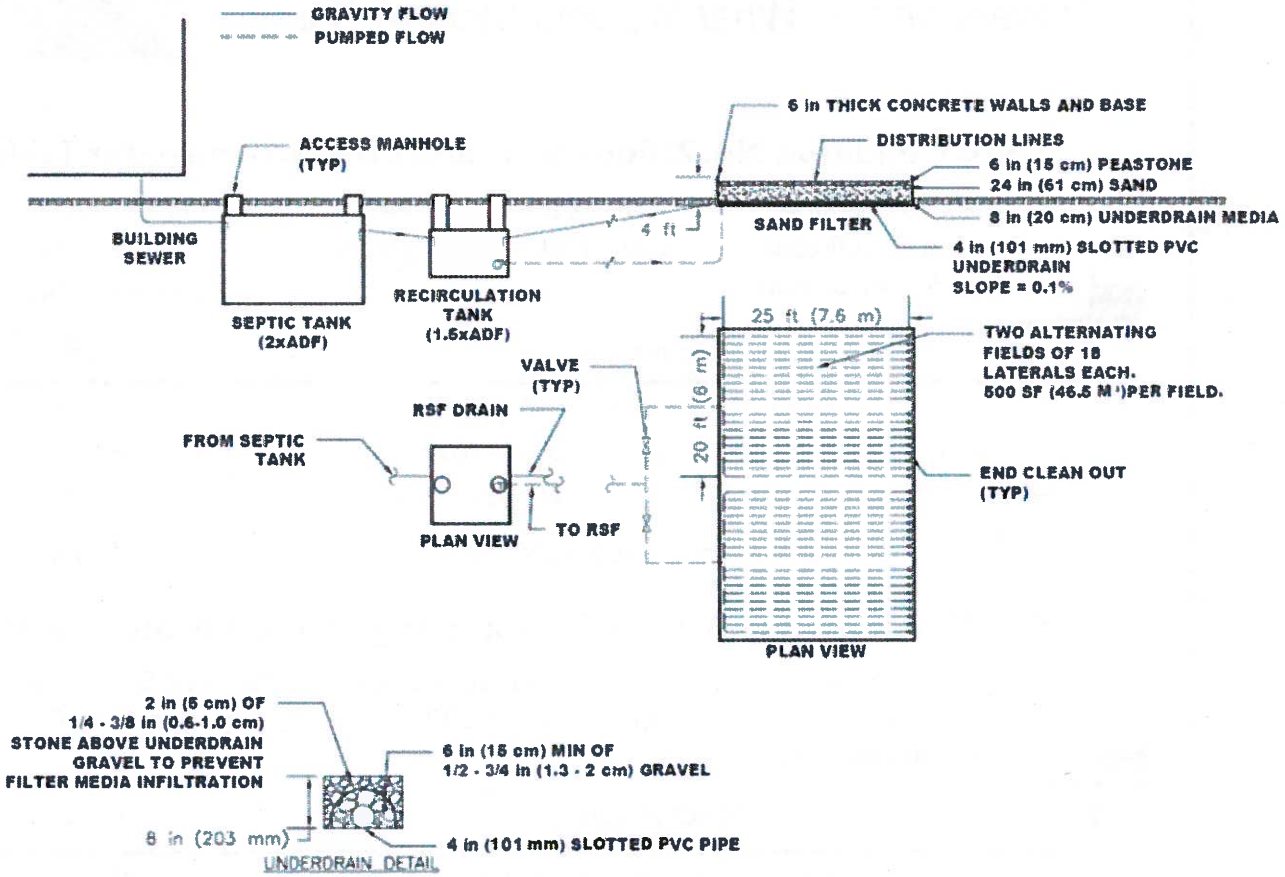


3 Main Components of a Mounded System

1. Septic Tank
2. Dosing or Pump Chamber
3. Elevated Mound

On-Site Wastewater Disposal (continued)

Understanding What Impacts System Costs



Site Condition No. 4: Advanced Treatment System

4 Bedroom House
Poor Soil Classification
Poor Percolation Rate

Low Groundwater Level
Septic Tank = 1,500 gallons
Mounded System OR

Larger Leachfield
(Up to 3,000 sq ft)

Description	Cost	Cost on difficult site
Capital Cost - Installation	$25,000	$50,000
Monthly Payment (2 Percent Loan–10 Years)	$232	$464
Monthly Operations and Maintenance	$39	$39
Estimated Total Monthly Cost	$271	$503

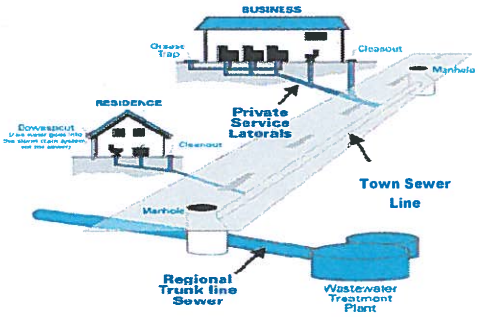
What is a Advanced Treatment System?
An advanced treatment system is any onsite waste disposal system design which uses components other than the traditional combination of a septic holding tank and a soil absorption system and provides enhanced treatment performance.

What are the Disadvantages of a Advanced Treatment System
Higher design and construction costs, higher operation and maintenance costs, property aesthetics, pumps or siphons, yearly Inspection by a Registered Professional Engineer, and annual testing are required.

Town Sewer System vs. On-site Wastewater Disposal System

What's Involved in Connecting or Not Connecting?

1. **Betterment** - Covers the cost of designing and constructing the sewer system infrastructure in the public ways. Users have the option to pay for their Betterment in one lump sum payment or over a period of time (typically 20 years) at a set interest rate of 4 percent. For example, if your Betterment is $20,000, and you select to pay for it over a 20-year time period, your monthly payment would be $118.



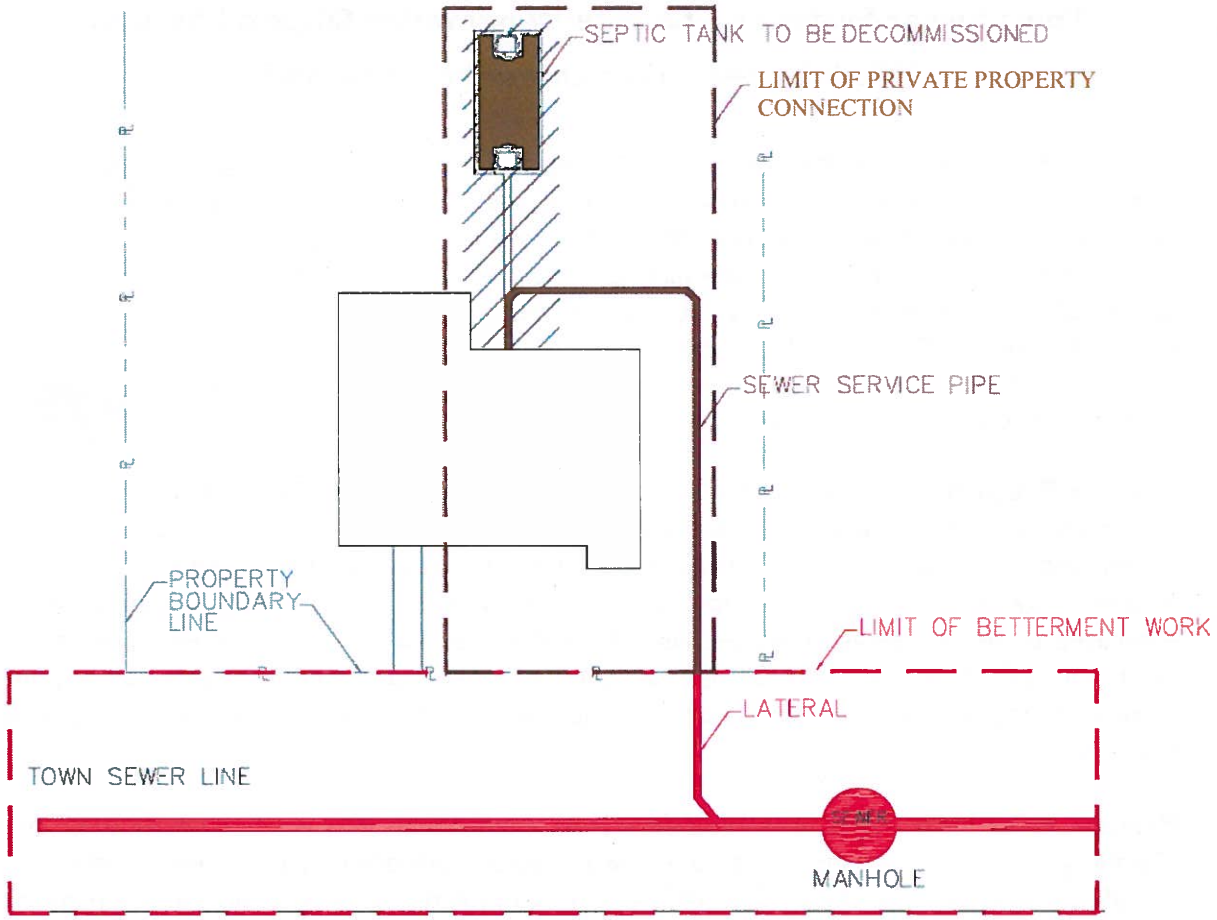
2. **Private Property Connection** - Individual sewer lateral will be constructed from the Town sewer line to each property boundary line by the Town's Contractor. The cost for this lateral is included in the Betterment. However, additional costs that are the responsibility of the property owner include connection from the lateral to the building plumbing, which is estimated to be an average cost between $5,000 and $15,000. The cost will vary depending on the length of sewer service pipe, unique site conditions, requirements for a pumping system, septic system decommissioning requirements, and the extent of site restoration required.

3. **Private Plumbing Additions/Modifications** - Individuals may elect to revise their interior plumbing in order to connect to the sewer system infrastructure. These costs are not included in the Betterment or Private Property Connection and are the responsibility of the property owner. The cost will vary depending on the additions/modifications planned.

4. **Annual Sewer User Charge** - Like all public utilities, there is a sewer service charge to each sewer user that pays for ongoing operation and maintenance of the public sewer system. The current sewer user charge is calculated based on the amount of water usage metered at each property. The amount paid per cubic foot of water usage is based on an increasing block rate schedule for both water usage and sewer service. The rates periodically change based on the cost to operate and maintain each system. The more you use, the more you pay. For example, for a single family residential house your sewer usage charge would be $65 per month (base fee of $150 per year plus a disposal fee of $6.34 per 100 cubic feet of water used.

5. **On-site Wastewater Disposal System** - On-site wastewater disposal systems have a useful life of around 20 to 30 years. At the end of the useful life, the on-site wastewater disposal system will need to be rehabilitated/replaced in order to provide proper wastewater treatment and disposal. For example, if the cost to install an on-site system is $17,500, the homeowner would be required to repeat the expenditure in about another 25 years.

Town Sewer System



Betterment Cost and Sewer User Charge (Does Not Include Cost for Private Property Connection or Private Plumbing Additions/Modifications)	Range of Costs	
Betterment	$11,000	$16,500
Monthly Payment (3 Percent Betterment–40 Years)	$40	$60
Monthly Sewer User Charge (Current Rate)	$65	$65
Estimated Total Monthly Cost	**$105**	**$125**

This alternative is based on forming a Sewer District and receiving a 45 percent grant and a 40 year 3 percent loan from USDA Rural Development

See **Page 11** for a Summary of
Septic System Costs vs. Town Sewer System Costs

Summary of Estimated Costs

Site Condition No. 1–Typical Septic System Installation	Cost
Capital Cost - Installation	$15,000
Monthly Payment (2 Percent Loan–10 years)	$140
Monthly Operations and Maintenance	$11
Estimated Total Monthly Cost	**$151**

Site Condition No. 2–Poor Soils and Low Groundwater Table	Cost
Capital Cost - Installation	$17,500
Monthly Payment (2 Percent Loan–10 years)	$163
Monthly Operations and Maintenance	$11
Estimated Total Monthly Cost	**$174**

Site Condition No. 3–Poor Soils and High Groundwater Table	Cost
Capital Cost - Installation	$20,000
Monthly Payment (2 Percent Loan–10 years)	$186
Monthly Operations and Maintenance	$24
Estimated Total Monthly Cost	**$210**

Site Condition No. 4A–Advance Treatment	Cost
Capital Cost - Installation	$25,000
Monthly Payment (2 Percent Loan–10 years)	$232
Monthly Operations and Maintenance	$39
Estimated Total Monthly Cost	**$271**

Site Condition No. 4B–Advance Treatment on difficult site	Cost
Capital Cost - Installation	$50,000
Monthly Payment (2 Percent Loan–10 years)	$464
Monthly Operations and Maintenance	$39
Estimated Total Monthly Cost	**$503**

Betterment Cost and Sewer User Charge	Range of Costs	
Betterment	$11,000	$16,500
Monthly Payment (3 Percent Betterment–40 Years)	$40	$60
Monthly Sewer User Charge (Current Rate)	$65	$65
Estimated Total Monthly Cost	**$105**	**$125**

Notes

WANT MORE INFORMATIONABOUT THE SEWER SYSTEM CONSTRUCTION PROGRAM?
Contact John Lincourt, Superintendent at 401-625-6701